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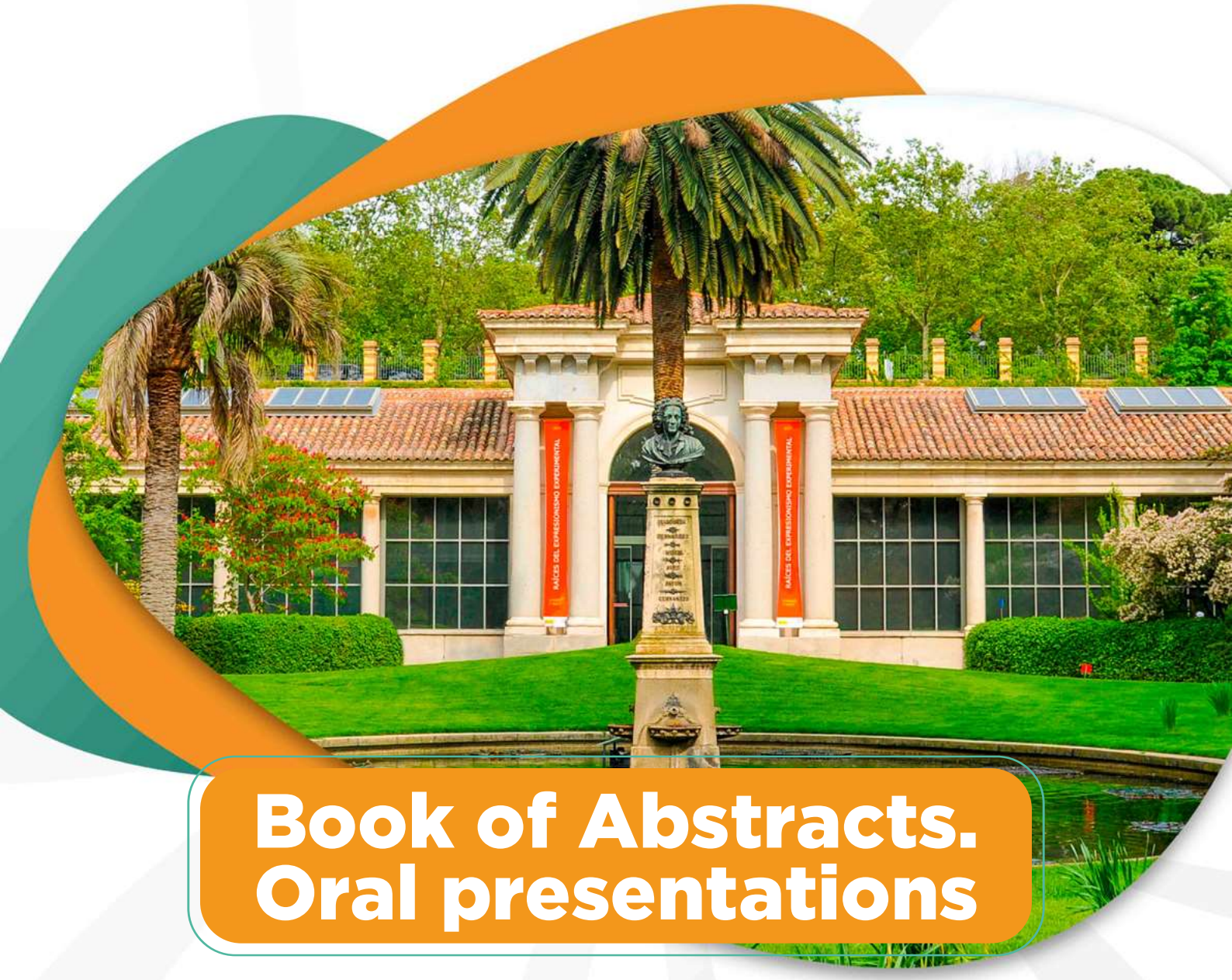

Book of Abstracts. Oral presentations

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1900 mg/l mg/l KNO_3 to increase bulb diameter. Improved seeds germination was noted on MS medium with and without sucrose but with variation compared to previous reports. The bulb formation rate on each of the germinated seeds was not parallel. The results showed 34% and 28.5% bulb induction noted on germinated seeds after 150 and 158 days on MS medium containing 20 g l^{-1} sucrose and no sucrose in the same sequence. The results emphatically noted role of cold stratification on agar solidified MS medium supplemented with sucrose to improve seed germination. The best increase in bulb diameter was noted on MS medium containing 1 × 1900 mg/l KNO_3 after 178 days with bulblet diameter and weight of 0.54 cm and 0.048 g, respectively. Consequently, the bulbs induced on sucrose-containing MS medium could be transferred to pots earlier. Increased (>1 × 1900 mg/l KNO_3) strengths of KNO_3 induced a negative effect on the growth and development of Tunceli garlic bulbs. The strategy of seed germination and bulblet induction reported in this study could be positively used for conservation and protection of this endemic.

S.87.2 Can inbreeding coefficients predict plant progeny fitness? A case study from wild and translocated populations.

Chantelle A.T. Doyle[1,2], Manuela Cascini[2], Ryan Tangney[1,4], Sam Yap[2], Maurizio Rosetto[2], Jason Bragg[2], Charlotte Mills[3], Mark K.J. Ooi[1]

1 Centre for Ecosystem Science, University of New South Wales, Sydney, Australia. 2 Research Centre for Ecosystem Resilience, Australian Institute of Botanical Science, The Royal Botanic Garden Sydney, Australia. 3 Airseed Technologies Australia Pty Ltd, Sydney, Australia. 4 Kings Park Science, Biodiversity and Conservation Science, Department of Biodiversity, Conservation and Attractions, Kings Park WA, Australia

Many threatened species are at risk of extinction or functional extinction due to genetic and reproductive isolation, arising from historic contractions of ranges, and anthropic fragmentation. One method of managing fragmented populations is through genetics rescue, using translocations, particularly supplementations/augmentations and reintroductions. In our study we used a long lived clonal but preferentially outcrossing case study species to assess the impact of inbreeding on fitness of wild and translocated populations. We paired inbreeding coefficients (FIS) with targeted outcrossing to determine if varied fitness of wild plants could be attributed to inbreeding. We also identified if strategic outcrossing resulted in increased growth, seed viability and reproduction of germinants intended for an augmentation translocation and if these strategies could be used to plan more effective and robust plant translocations where genetic rescue is required.

S.87.3 Assessing the restoration potential for the rare sexual populations of Chara canescens, a singular cryptogam, from their oospores

Adriana Arnal[1], Karl-Georg Bernhardt[2], Pablo García-Murillo[3], Riccardo Guarino[4], AngeloTroia[4], Barbara Turner[2], Johanna Weitzel[5], Hendrik Schubert[5] and Maria A. Rodrigo[1]

1 Cavanilles Institute for Biodiversity and Evolutionary Biology, University of Valencia, Valencia, Spain, maria.a.rodrigo@uv.es. 2 Dep. Integrative Biology and Biodiversity Research, BOKU-University of Natural Resources and Life Sciences, Austria. 3 Dep. Plant Biology and Ecology, Faculty of Pharmacy, University of Sevilla, Spain. 4 Dep. Biological, Chemical and Pharmaceutical Sciences and Technologies, Univ. Palermo, Italy. 5 Institute for Biosciences, Chair Aquatic Ecology, University of Rostock, Germany

Chara canescens is a charophyte algae, which plays an important role in the ecosystems that it inhabits. This species is unique within its genus because it presents two different reproductive strategies: parthenogenesis, which is unusual in this genus, and sexual reproduction. Parthenogenetically reproducing populations are known for coastal brackish lagoons worldwide, so they are not considered as rare; however, sexually reproducing populations are restricted to Mediterranean and Pannonian inland brackish water sites, with only a few populations recorded in the last decades. The genetic flow of both populations types through stepping-stone habitats is key to the genetic diversity of the species; and its conservation. The parthenogenetically reproducing populations lack at least some of the genetic recombination mechanisms and consequently are more vulnerable to loss of genetic diversity compared to sexually reproducing species. This fact means that protection measures

limited to the coastal stands will not be effective, because the fitness of these stands depends to a high degree on connectivity with inland brackish water sites. With the aim of developing effective transnational conservation strategies, the project "ProPartS" (Biodiversa+) assesses the restoration potential of the species' diaspore bank. The oospores are the charophytes sexual propagules, which can remain viable in the sediment during years and develop new individuals when the conditions are suitable again. Analyzing these oospores (in terms of vitality, germination rate, interfertility assessment...) and assessing the possible differences between the sexually or parthenogenetically produced ones may help to develop effective conservation actions and restoration initiatives for the species. These "hidden biodiversity elements" act as reservoirs and can ensure mid-term resilience of temporary and/or degraded habitats and be potentially useful for the restoration of lost habitats. This is especially important in the context of a changing environment dealing with increased droughts and other threats for the aquatic ecosystems.

S.87.4 Extinct or not? Establishing the status of the urban endemic Hieracium tolstoii (Asteraceae) with taxonomic investigations

Orsenigo Simone[1], Giacomo Baldesi[1], Carla Lambertini[2], Fainelli Federico[1]

1 Department of Earth and Environmental Sciences, University of Pavia, Pavia, Italy. 2 Department of Biosciences, University of Milan, Milan, Italy

Hieracium is one of the largest plant genera in the Angiosperms and experienced a rapid and recent evolutionary radiation. Due to the massive morphological variation among species, past hybridization events and frequent polyploidization, combined with apomictic reproduction in polyploids, the species concept in *Hieracium* is widely debated and species identification is very challenging. According to recent studies (Davis et al. 2011) most vulnerable species are found within young and fast-evolving plant lineages and several *Hieracium* species are considered extinct or threatened[2]. Taxonomy represents the first fundamental step for every conservation project. Taxonomic investigation can lead to changes in conservation status or to de-extinctions of species[3]. Taxa with doubtful classification are particularly sensitive to this kind of problems. *Hieracium tolstoii* Fen. & Zahn was a narrow endemic species described for the ancient walls of Milan Castle (Italy). Morphologically, this species was considered as intermediate between two other species (*H. pospichalii* and *H. australe*). However, no further investigations were conducted on *H. tolstoii* origin after the first description in early XX century and nowadays the species is considered extinct[3]. To verify the nomenclatural identity of *H. tolstoii*, disentangle its origin and ensure the validity of its current conservation status, we conducted a taxonomic investigation on herbaria specimens of the early XX century. Specimens were studied by morphometric analysis comparing *H. tolstoii* with *H. australe*, *H. pospichalii*, and other closely related species. Finally, we performed phylogenetic investigations using three plastid intergenic spacers (trnH-psbA, trnT-trnL, and trnV-ndhC) and ten nuclear microsatellites to evaluate the genetic relationship between species and assess the possibility of hybrid origin of *H. tolstoii*.

References: Davies et al. (2011), *PLOS Biology*, 9(5):e1000620. 2 Abeli et al. (2021), *Nature Plants*, 7(3):282-286. 3 Orsenigo et al. (2021), *Plant Biosystems*, 155(2):310-335

S.87.5 Using pedigree approach to make management decisions of valuable ex-situ collections

Jeremie Fant[1,2], Zoe Diaz Martin[1,3], Nora Gavin-Smyth[1,2], Kay Havens[1,2]

1 Chicago Botanic Garden, Glencoe, Illinois, USA. 2 Northwestern University, Evanston, Illinois, USA. 3 Spelman College, Atlanta, Georgia, USA

Historically, ex situ plant conservation has focused on seed banking, however, up to one-third of threatened flowering plant do not produce seeds or produce seeds that cannot be dried and frozen for storage. As a result, these exceptional species must be conserved in living plant collections. This practice of maintaining small, isolated populations often leads to inbreeding, loss of genetic diversity, hybridization between species, and in general, poor conservation outcomes, creating challenges for ensuring their long-term genetic diversity and viability/ An important method used in the zoo community is a pedigree-based management approach, where founding individuals are genotyped and recorded in a "studbook." This allows genetic lineages to be tracked and prevents the breeding of closely related individuals. Optimal breeding pairs are identified